



Appendix A

Claim Amendments

1. - 77. (Canceled)

78. (Currently amended) A method for changing the temperature of a sample from an initial temperature via an intermediate temperature to a final temperature, one of the initial and final temperatures being above the freezing point of said sample and the other being below the freezing point, the minimal dimension of the sample in each of two mutually perpendicular cross-sections exceeding 0.5 centimeters, and at least one of the cross-sections having an outer zone and an inner zone, the method comprising:

- (i) changing the temperature of the sample by subjecting it to a temperature gradient from the initial temperature to the intermediate temperature until the temperature of the sample in at least one part of the outer zone equals the intermediate temperature whilst the temperature of the sample in the inner zone or in another part of the outer zone, spaced from said one part, is different from said intermediate temperature;

(ii) further changing the temperature of said sample by subjecting it to the intermediate temperature until the temperature of said sample in at least one cross-section is uniform and equals the intermediate temperature; and

(iii) changing the temperature of said sample until the majority of said sample is at the final temperature.

79. - 97. (Canceled)

98. (New) The method of claim 78, wherein said sample is subjected in step (ii) to said intermediate temperature until the temperature of the sample equals said intermediate temperature.

99. (New) The method according to claim 78, wherein the changing of the temperature in step (i) is achieved by moving the sample through a region with a temperature gradient from the initial temperature to the intermediate temperature, and the changing of the temperature in step (iii) is achieved by moving the sample through a region with a temperature gradient from the intermediate temperature to the final temperature.

100. (New) The method of claim 78, wherein said changing of the temperature is at least partially gradual and is achieved at least partially by the gradual movement of said sample in the direction of a temperature gradient.

101. (New) The method of claim 100, wherein the changing of temperature in step (ii) is performed by placing said sample in a region with the intermediate temperature, said region having a length along the direction of the movement of said sample and said length is not less the length of the sample along said direction of movement.

102. (New) The method according to claim 78, wherein the changing of the temperature in step (i) is achieved by moving the sample through a region with a temperature gradient from the initial temperature to the intermediate temperature, and the changing of the temperature in step (iii) is achieved by moving the sample through a region with a temperature gradient from the intermediate temperature to the final temperature.

103. (New) The method according to claim 102, wherein the sample has a leading end along the direction of movement and step (i) comprises:

- (a) moving the leading end into a region with a temperature gradient from the initial temperature to the intermediate temperature;
- (b) pausing the movement until seeding takes place at the leading end; and
- (c) moving the sample through said region.

104. (New) The method according to claim 103, wherein the seeding in step (b) is achieved by introduction of liquid nitrogen to said leading end of the sample.

105. (New) The method according to claim 101, wherein step (ii) comprises:

- (a) moving the sample into the region with the intermediate temperature, until substantially the whole sample is within said region;
- (b) pausing the movement of the sample within said region until the temperature of the sample is substantially uniform throughout the sample and equals the intermediate temperature; and
- (c) moving the sample out of said region.

106. (New) The method according to claim 100, wherein the velocity of movement in step (i) is equal to the velocity of movement in step (iii).

107. (New) The method according to claim 100, wherein the velocity of movement in step (i) is different from the velocity of movement in step (iii).

108. (New) The method according to claim 78, wherein the volume of the sample exceeds 5 milliliters.

109. (New) The method according to claim 78, wherein the volume of the sample is 12 milliliters or more.

110. (New) The method according to claim 78, wherein the volume of the sample is 50 milliliters or more.

111. (New) The method according to claim 78, wherein the sample comprises blood cells.

112. (New) The method according to claim 78, wherein the sample comprises plasma.

113. (New) The method according to any claim 78, wherein the sample comprises one or more embryos.

114. (New) The method according to claim 78, wherein the sample comprises semen.

115. (New) The method according to Claim 78, wherein the sample is taken from humans.

116. (New) A device for changing the temperature of a sample, said device comprising:

- a track;
- a mechanism for moving the sample along said track.
- temperature control means for imposing a temperature gradient along a first area along said track;
- temperature control means for imposing a constant temperature along a second area along said track, such that the length of said second area along the track would be at least equal to the length of the sample along said track; and

- temperature control means for imposing a temperature gradient along a third area along said track.

117. (New) A device for changing the temperature of a sample, the minimal dimension of the sample in each of two mutually perpendicular cross-sections exceeding 0.5 centimeters, said device comprising:

- a track;
- a mechanism for moving the sample in a direction along said track;
- temperature control means for imposing a temperature gradient along a first area along said track;
- temperature control means for imposing a constant temperature along a second area along said track, such that the length of said second area along the track would suffice to allow the sample, at each cross-section taken perpendicularly to said direction to reach the intermediate temperature by the time it is moved out of said second area; and

- temperature control means for imposing a temperature gradient along a third portion of said track.

118. (New) A device according to claim 117, wherein said second area along the track is at least equal to the length of the sample along said track.